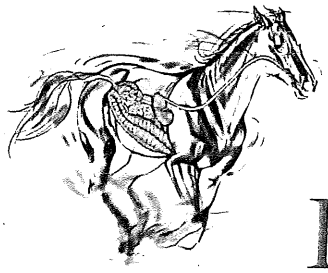
Fecal and cecal pH in horses fed pelleted barley

Jensen, Rasmus Bovbjerg; Austbø, D.; Tauson, Anne-Helene

Published in:
Horse Health Nutrtion

Publication date:
2013

Document version
Early version, also known as pre-print



HORSE HEALTH NUTRITION

6th Edition

March 01-02 2013

European Equine Health & Nutrition Congress

WAGENINGEN UR
For quality of life

Universiteit Utrecht

CVU
Clinique Vétérinaire Universitaire

UNIVERSITEIT GENT

The 6th European Equine Health & Nutrition Congress

The following persons were involved in the organisation of the 6th EEHNC

Scientific Committee & Organizing Committee

Peter Bollen (President EEHNA)
David van Doorn (Secretary)
Piet Deprez (Ghent University)
Myriam Hesta (Ghent University)
Geert Janssens (Ghent University)
Gaby van Galen (Independent Specialist)
Han van der Kolk (Utrecht University)
Wouter Hendriks (WUR & Utrecht University)
Aurélia Leroux (University of Liège)
Hélène Amory (University of Liège)

Local Organization

David van Doorn (Secretary)
Mireille Massagé (Registration Desk)
Lieselot Hamerlinck (Registration Desk)
Anton Luyten
Geert Janssens
Myriam Hesta
Sofie Dupont
Piet Deprez
Maike Busshaus
Marieke van der Laak
Simone Hendriksen
Mira Schoon

Workshop Lectures & Demonstration

Deborah van Doorn
Edwin Claerebout
Myriam Hesta
Lieven Vlaminck
Annette Zeyner
Marc van den Top
Hélène Amory
Gunther van Loon
Peter Bollen

Fecal and cecal pH in horses fed pelleted barley

R.B. Jensen[1], D. Austbø[2], A.-H. Tauson[1]

Corresponding author : ralle@sund.ku.dk
[1]Department of Veterinary Clinical and Animal Sciences, University of Copenhagen
[2]Department of Animal and Aquacultural Sciences, Norwegian University of Life Sciences

Dietary effects on the hindgut environment are sometimes evaluated based on fecal samples[1,2]. Whether a fecal sample really mimics the hindgut environment is though questionable. The data presented here is part of a larger experiment where four cecum cannulated horses were used to study dietary effects on pH changes in the cecum and in feces. The horses were fed hay 3 times a day (06:00, 16:00 and 22:00) and concentrate twice a day (06:00 and 22:00). Two different combinations of concentrate were fed in two periods: Ration 1) 2.15 kg pelleted barley at 06:00 and 1 kg pelleted barley at 22:00, Ration 2) 2.15 kg pelleted barley + 0.3 kg Betfor® (molassed sugar beet pulp) at 06:00 and 0.4 kg pelleted barley + 0.3 kg Betfor® at 22:00. After an adaption period to the diets measurements were taking place on two consecutive days. On the first day samples of cecal fluid were collected before and each hour after the meal at 06:00 for 9 hours, and on day two fecal samples were taken every second hour for 24 hours. pH was measured immediately after a sample was taken. Data was analyzed in SAS® as repeated measurements. There was no effect of ration on pH in the cecum, but pH decreased significantly after feeding at 06:00 (time 0: pH 6.74) and reached minimum 4 hours after feeding (time 4: pH 6.39). A significant effect of feeding on fecal pH was found (Ration 1: pH 6.21 and Ration 2: pH 6.13), and there was also a significant effect of time on fecal pH (maximum: pH 6.34 and minimum: pH 6.00). The results showed that a barley meal decreased cecal pH, and changes could also be recorded in fecal samples. Whether the diurnal variation in fecal pH was a result of the two concentrate meals is unknown, but sampling time affected pH when effects of diet were evaluated in fecal samples.

[1] Berg *et al. 2005.* J. Anim. Sci. 83, 1549-1553.
[2] Zeyner *et al.* 2004. J. Anim. Physiol. a. Anim. Nutr. 88, 7-19.